CHAPTER 6

Little Bears, Big Trees, Tiny Insects: Protecting Sun Bears and Their Rainforest

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Mary

Every day someone takes the orphans for a walk. There are many orphans—too many orphans. They have sleek black hair, and little bowed legs. They are only about a foot tall, and look up with dark eyes in front of little round ears. They have sharp canines, long claws, and stubby tails. These orphans are sun bears.

Last year in Ranau Township in central Sabah, the Bornean Sun Bear Conservation Centre (BSBCC) rescued a tiny bear named Mary from a villager who claimed that he had "found" the little bear while hunting for bearded pigs on a palm oil plantation. Like most baby mammals, bear cubs require intense maternal care in their first few months of life. As cubs grow and gain mobility, they romp and play, but they never stray far from their protective mothers, who keep them safe from predators and other mishaps. Mothers also teach cubs the secrets of survival—where to find food, and what to eat. When she arrived at BSBCC, Mary was probably only two months old, still very much in need of her mother.

"Walking" orphans permits young bears to learn what their mothers would normally teach them—how to forage for invertebrates and wild fruits, and which sights and sounds to avoid. BSBCC staff seek ways to reawaken and strengthen natural behaviors in the hope that rescues can be released back into their natural environment when they are adults.

As she walks through the forest, Mary often stops to forage for tiny termites at the base of massive dipterocarp trees. She busily digs with her strong sickle-shaped claws for a termite nest deep in the earth, which she is able to smell with her sensitive nose. As she digs, Mary breaks off small chunks of decaying wood, exposing termites. With a fast-flicking tongue, she feeds furiously on the terrified termites, catching them up as they swarm from their broken home. She seems as oblivious to the giant trees that stand over her like friendly giants as she is to the sound of cicadas and other forest insects roaring all around. The lush vegetation holds Mary in her dark safe-haven, a world that seems to have been created specifically for sun bears. The friendly people at

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BSBCC who "walk" Mary hope that she will have a chance to reclaim her birthright in the wilds of Borneo—a little bear among big trees eating tiny termites.

Sun Bears

Sun bears (*Helarctos malayanus*) are one of the least studied bear species—it is likely that they are more neglected by scholars than *any* other bear. There are two sun bear subspecies: The Bornean sun bear (*H. m. euryspillus*) on the island of Borneo, and Malayan sun bear (*H. m.malayanus*) on the Asia mainland and Sumatra. The Bornean sun bear is smaller in size, with males weighing only about 45 kg (100 pounds); Malayan sun bears weigh as much as 90 kg (200 lb.).

Sun bears live in fragmented forests in Myanmar, Thailand, China's southern Yunnan Province, Laos, Cambodia, Vietnam, Peninsular Malaysia, Sumatra, Borneo, and on the eastern tip of India. Asiatic black bears share the northern portion of sun bear habitat, but the sun bear is the only bear living in the tropical forests of Southeast Asia south of Thailand. Sun bears have been driven from most of Southeast Asia by deforestation.

Female sun bears den in hollow tree trunks, or cavities in huge trees that have fallen onto the forest floor, where they give birth to one or two cubs. Tree cavities are the safest dens for sun bears because they are relatively dry (in a moist rainforest), relatively cool (in a hot tropical climate), and relatively warm even on cool nights. Newborns are only about 0.3 kg (0.66 lb). They are naked, blind, and helpless. Sun bear cubs stay with their mothers for at least two years in order to learn all that they need to know in order to survive.

Sun bears are unique among bears. Most noticeably, they are the smallest bears. They also have ample, loose skin, which some biologists believe allows them to turn and bite more quickly and easily when attacked, helping them to escape predators. Sun bear claws are unique not just among bears, but among species labeled as carnivores: A piece of bone inside each claw grows slowly throughout their lifetime. As a result, older sun bears have longer, more curved claws than younger bears. This clawbone is attached to a relatively large muscle at the tip of their paws, giving each claw the necessary strength to break through hard surfaces in order to open termite nests and logs, while also helping sun bears to climb trees. Finally, these bears have very long tongues. From the base, sun bear tongues can be up to 18 inches long—a perfect tool for collecting minuscule food items deep inside holes.

Like all bears, sun bears are opportunistic feeders. They are omnivorous, and the bulk of their diet consists of fruits and insects. In season, sun bears

feed on more than 100 species of wild fruits. Most trees in sun bear habitat fruit only intermittently—once every two to eleven years! This intermittent fruiting cycle is known as "mast fruiting," or simply "masting." When masting, trees usually fruit for a few months, during which time sun bears spend a great deal of time high in the trees, gorging on pulpy fruits (with higher sugar content), storing up fat for lean periods ("intermast intervals"), which can last for several years. During these lean times, sun bears feed on non-masting fruits, such as figs (*Ficus spp.,* family *Moracea*), or on invertebrates—especially termites. Figs are a "keystone species" in sun bear habitat—fig trees each fruit on their own schedule throughout the year, and many local species depend on figs for survival. Because invertebrates are miniscule in comparison with sun bears, bears must constantly wander, smell, and dig if they are to eat their fill.

Selling Forests, Selling Out on Sun Bears

Habitat loss is by far the greatest threat to sun bears. As human populations grow exponentially, the demand for agriculture, logging, and mining also grow exponentially. Because bears require forests, and because logging brings roads, industries, settlements, and poachers into bear habitat, selling timber in Southeast Asia is synonymous with selling out on sun bears. Southeast Asia's forests are some of the oldest and most biologically diverse forests anywhere in the world—and they are home to a host of key species that are now critically endangered, including two species of Asian rhinoceroses, orangutans, Malayan and Sumatran tigers, Asiatic elephants, and sun bears. With few exceptions, all of Borneo's remaining forests are open to logging, including national parks, conservation areas, wildlife reserves, and sanctuaries. In 2008, sun bears were upgraded from "Data Deficient" to "Vulnerable" on the IUCN Redbook List of Threatened Species. Experts indicate that sun bear populations have declined by more than 30 percent in the last 30 years. If this process continues, sun bears are doomed to extinction.

Lowland rainforests in Malaysian Borneo have been selectively logged since the 1960's, targeting big trees and lucrative hardwoods, including dipterocarp trees. Some of these trees were more than 800 years old, offering a lush forest canopy 80 meters (262 feet) above the rich soils that fed their strong roots. Because of selective logging, thick forests across Southeast Asia have been thinned and reduced to stands of younger, smaller trees. It will take 700 years to replace these rainforest giants. Few studies examine the effects of losing old trees, or of reducing tree diversity. Changing forest structures certainly affects

forest ecology. For example, smaller trees yield comparatively less fruit, and it is more difficult for wildlife (from hornbills to bears) to find suitable tree trunks for nesting and denning. Human populations continue to swell, simultaneously increasing logging, mining, and agriculture. With ongoing logging and limited forests, loggers claim smaller and smaller trees—and a larger variety of trees in more remote areas.

Logging not only robs endangered wildlife of essential habitat, but further threatens depleted species by running roads through previously remote landscapes. Roads offer easy access for poachers—or anyone with a gun who feels like shooting wildlife. Once roads are built, bears become almost impossible to protect. Poachers do not stop at the boundaries of protected forests—they know that protected forests are where bears are most likely to be found. From a poacher's perspective, every part of a bear's body has value as food, clothing, or medicine. Their gall bladders are particularly lucrative, selling for $150 in Malaysia, and up to $2000 in Hong Kong. Other body parts, including claws, paws, and canine teeth sell for a high price. Many local people continue to believe that bear canines and claws possess supernatural powers that repel bad luck and evil spirits.

Roads running through previously remote areas also increase the likelihood of conflicts between wildlife and human beings. Sun bears who only recently roamed vast forests where humans could not easily intrude, find their habitat flattened, and strange new forests growing—most often palm oil plantations. When bears wander into plantations, or into recently planted crops of fruit or coconut trees, men with guns protect their investments. Settlers emerge at night with spotlights and guns, eager to shoot bearded pigs, wild boars, and sun bears. When they shoot a mother bear, the helpless cubs are usually kept as pets.

Sun bear cubs are extremely cute, so there is a market for these little bears, and this market stands as just one more threat to declining sun bear populations: The only way to catch a cub is to kill the mother. Unscrupulous and/or ignorant people buy these adorable cubs as if they were kittens, stealing their lives and sealing their fates—cubs rarely have a chance to be rehabilitated and released once sold as "pets." But the "cute-cub phase" does not last long (typically less than a year). By the time they are ten months old, sun bear cubs are extremely strong—capable of destroying pretty much everything in a domestic household. (Sun bears have a stronger bite relative to body size than any other bear species—and *any* bite from a bear would be a threat to human beings.) Some stoop so low as to have a bear's canines filed and his or her claws surgically removed. Of course this does not solve the problem—the problem is that bears are wild animals who do not belong in human households. The most

common next step is to lock these unfortunate young bears in small cages, where they usually remain for the rest of their lives. Others are soon backpedalling, desperately seeking somewhere to unload their "pet" bear. Mary was one such cub, though she was comparatively lucky—whenever possible, BSBCC staff rehabilitate cubs and return them to their forest home.

Southeast Asian Forest Ecosystems and Sun Bears

Dynamics between living organisms are continuous in the tropics. With a growing "season" of 365 days, plants thrive and animals remain active year-round. Sun bears are central to this ongoing tropical interchange in at least three critical ways.

First, by consuming millions of termites, sun bears act as "forest doctors," helping to maintain the health of forest ecosystems. Termites, who feed on dead plant material, are probably the most important invertebrate decomposer in Southeast Asia's tropical rainforest ecosystems. Termites also enhance soil structure and quality by loosening the earth, enriching mineral content, and assisting nitrogen/carbon cycles. But as with all species, they can be too much of a good thing. Some termite species (such as *Microcerotermes dubius*) also attack living plants—most notably, trees. These termites are indiscriminate, consuming trees of any species and size, and they are capable of gobbling up entire forest areas, leaving significant gaps in the trees. Sun bears help keep termite populations under control. When fruit is not available, sun bears feed extensively on invertebrates, and termites are by far the most important group of creepy-crawlies in the sun bear's non-fruit diet. In the course of a day's feeding, a single sun bear consumes thousands of termites, including larvae and eggs. In this way sun bears are "forest doctors," controlling the number of termite colonies in order to maintain the health of tropical forests.

Second, sun bears act as "forest engineers," reshaping trees to help create vital nesting sites for woodland animals. The local name for sun bears in the Malaysia and Indonesian language is "*beruang madu*"—honey bear. In the lowland rainforest of Borneo, stingless bees (*Trigona spp.*) build nests in tree trunk cavities, which they fill with honey. Some of these nests are 20 meters (65 feet) above ground, but sun bears are like Winnie the Pooh—honey is their favorite food and they will go to great lengths to taste this sweet nectar. When they reach bee nests, sun bears extract the honey and simultaneously "excavate" nests with their strong claws. When the bear climbs down from the tree, filled with honey and bee eggs and larvae, only a large cavity remains. These cavities later serve as

homes for species that require large cavities for nesting, but are incapable of digging such hollows themselves (such as hornbills and flying squirrels).

Third, because they consume vast quantities of fruits—seeds and all—sun bears serve as "forest farmers," sowing seeds throughout local ecosystems. Ideally, seeds are dispersed far from mother-trees—young trees are unlikely to thrive in the shadow of their tall parents. Sun bears are critical for seed dispersal—especially for larger seeds, such as those of durian trees (*Durio spp.*). Sun bears carry seeds in their digestive tracts for up to eight hours, wandering as much as 5 km (3 miles) in a day, depositing seeds far and wide—"planting" seeds in the rich remains of whatever else they have eaten. As "forest farmers," sun bears assure a future crop of fruiting trees.

Little bears, big trees, and tiny termites have been central to the ecosystems of Southeast Asia's lowland tropical rainforests for thousands of years—each has evolved in the presence of the other, and they depend on one another. If we lose sun bears, the ecosystem to which they belong will be significantly altered, having far-reaching consequences.

The Bornean Sun Bear Conservation Centre

BSBCC stands on the northern edge of Sepilok Forest Reserve, in Sabah, Malaysian Borneo, witness to the many severe dangers facing these bantam bears. In order to protect sun bears and their habitat against the onslaught of human activities, which rob them of their homes and their lives, BSBCC has adopted a four-pronged program:

- Provide sanctuary for bears in need,
- rehabilitate and release captive sun bears when possible,
- foster outreach and provide education, and
- engage in research.

Sanctuary is important if bears are to have somewhere to go when they are orphaned and/or injured. BSBCC rehabilitates bears for release back into their tropical forest home, and provides safe haven for those who cannot be released. Education is critical because BSBCC cannot single-handedly assure the survival of sun bears. For example, BSBCC needs the support of the larger community to pressure law enforcement to crack down on poaching, the sale of bear cubs, and the sale of bear body parts, and to prevent unsustainable logging practices. Neither can BSBCC secure the support of the larger community if there is not

a general understanding about the needs of sun bears, why they are disappearing, and why we must protect these bears. Raising awareness—both locally and internationally—is essential to the survival of sun bears.

And if BSBCC is to offer sanctuary, rehabilitate, and educate, personnel must first educate themselves. BSBCC must engage in research in order to understand sun bears—including basic facts that have long ago been collected on most other bear species, such as how far sun bears roam, how long they live, how mothers tend cubs, and how these pint-sized bears are affected by the loss of great big trees. In the well-stated words of Jane Goodall, "Only if we understand can we care. Only if we care will we help. Only if we help shall they be saved."

Saving sun bears requires an international effort, and BSBCC encourages people around the world to help in whatever ways they can. Please consider the following possibilities.

- Donate: The amount of work that BSBCC does for sun bears and their habitat is directly linked to the amount of funding received.
- Be Wise Consumers: Do not buy bear parts or products containing bear parts. Additionally, do not buy products containing palm oil or wood from Southeast Asia (unless they hold a sustainable seal that you can verify as legitimate).
- Network: Sun bears are perhaps the least known bear species. To gain public support, people must first know that sun bears exist, why they are endangered, and that they are not only a beautiful and fascinating species, but that they are also important ecologically. You can help spread the word by joining BSBCC's social network online (www.bsbcc.org.my; http://www.facebook.com/sunbear.bsbcc); by talking about sun bears with friends, family, and coworkers; and by mentioning them in the classroom or at environmentalist or animal activist gatherings. If you attend a meeting or conference for environmentalists or animal activists, set up a roundtable on palm oil plantations or Asian wood products—promote sustainable products (RSPO—www.rspo.org).
- Report Illegal Activity: If you hear of someone selling bear body parts or bear cubs, inform local authorities and NGOs working to protect wildlife, habitat, and/or animals.
- Volunteer: Volunteers help BSBCC to accomplish many tasks while supporting our work financially, allowing us to accomplish more for less. Volunteers bring home specialized training and unforgettable experiences, serving as overseas ambassadors for sun bears.

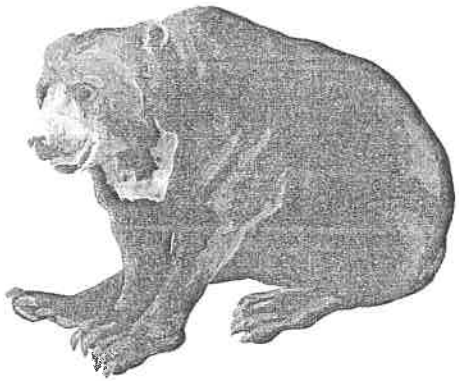

FIGURE 6.1 *Sun Bear*

Conclusion

Little bears, big trees, and tiny insects are part of an intricate, complicated web of life in Southeast Asia's tropical forests. Mary is part of this beautiful web of life.

Most people have never met Mary—or anyone even remotely like her. Most people have never watched a young sun bear dig vigorously for termites under an ancient dipterocarp tree. But knowing Mary—watching her sniff hopefully for grubs on this rich forest floor—it would be difficult to dismiss her needs, to leave her to the harsh fate of orphaned cubs.

BSBCC is doing all that they can for Mary and her forest home—and hopefully for Mary's cubs. But BSBCC cannot protect Mary or her forests without support. International effort is essential if we are to secure a future complete with ancient tropical rainforests where little bears dig tiny termites under giant dipterocarp trees.